



05-25-04

IFW

Docket No. 9138-0099US

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: **Gilbert et al.**

Serial No.: **10/634,520**

Filing Date: **August 4, 2003**

Title: **Semiconductor Quantum Cryptographic Device and Method**

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**CERTIFICATE OF MAILING BY EXPRESS MAIL**  
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I hereby certify that this correspondence, consisting of:

1. An Information Disclosure Statement (3 pages);
2. Form PTO 1449 (2 pages);
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P.O. Box 1450  
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on

5/24/04  
Date

Suzanne Shields  
Suzanne Shields

GALLAGHER & KENNEDY, P.A.  
2575 East Camelback Road  
Phoenix, Arizona 85016-9255  
Tel. No. (602) 530-8000  
Fax. No. (602) 530-8500



Attorney Docket No. 9138-0099US

**PATENT  
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

**In re Application of:** )  
 )  
 **Gilbert et al.** )  
 ) **Group Art Unit: 2811**  
**Serial No.:** 10/634,520 )  
 )  
**Filed:** August 4, 2003 )  
 )  
**For:** Semiconductor Quantum Cryptographic Device and Method )

**INFORMATION DISCLOSURE STATEMENT**

**Commissioner for Patents  
PO Box 1450  
Alexandria, VA 22313-1450**

Dear Sir:

Pursuant to 37 C.F.R. Section 1.97 - 1.99, the Applicant wishes to make the following references of record in the above-identified application. This Information Disclosure Statement is in compliance with the continuing duty of candor as set forth in 37 C.F.R. Section 1.56. These references are also listed on the enclosed PTO Form 1449 and copies are enclosed.

In the judgment of the undersigned, portions of the listed references may be material to the Examiner's consideration of the presently pending claims. However, the references have not been reviewed in sufficient detail to make any other representation and, in particular, no representation is intended as to the relative relevance between references, whether cited in this or prior statements. This statement is not a representation that the listed references have effective dates early enough to be "prior art" within the meaning of 35 U.S.C. Section 102 or Section 103.

This Information Disclosure Statement is being filed:

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- ☒ within three months of the filing date of a national application; within three months of the date of entry into the national stage as set forth in 37 C.F.R. § 1.491 in an international application; or before the mailing date of a first Office Action on the merits. 37 C.F.R. § 1.97 (b)
- ☐ **after** three months of the filing date of a national application, or the date of entry into the national stage as set forth in 37 C.F.R. § 1.491 in an international application; or **after** the mailing date of a first Office Action on the merits, but **before** the mailing date of a Final Action under 37 C.F.R. § 1.113 or a Notice of Allowance under 37 C.F.R. § 1.311 (whichever occurs first), and includes (37 C.F.R. § 1.97 (c):
- ☐ the Certification under 37 C.F.R. § 1.97(e) (see "Certification" below)

**OR**

- ☐ the fee of \$240 set forth in 37 C.F.R. § 1.17(p) (see "Fees" below).
- ☐ **after** a Final Action under 37 C.F.R. § 1.113 or a Notice of Allowance under 37 C.F.R. § 1.311 (whichever occurs first), but before, or simultaneously with, the payment of the issue fee, and includes the Certification under 37 C.F.R. § 1.97(e) (see "Certification" below), and the Petition Fee set forth in 37 C.F.R. § 1.17(i) (see "Fees" and "Method of Payment of Fees" below). Applicants hereby petitions for consideration of the Information Disclosure Statement submitted herewith and the accompanying references in examination of the subject patent application.

#### CERTIFICATION

- ☐ The **undersigned** hereby certifies that each item of information contained in the Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign patent application not more than three months prior to the filing of the Information Disclosure Statement.
- ☐ The **undersigned** hereby certifies that no item of information contained in the Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign patent application or, to the knowledge of the person signing the certification after making reasonable inquiry, was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of the Information Disclosure Statement.

#### FEES

- ☒ No fee is owed by the applicant(s).
- ☐ The **IDS Fee of \$240.00** under 37 C.F.R. § 1.17(p) is enclosed herewith.
- ☐ The **Petition Fee of \$130.00** set forth in 37 C.F.R. § 1.17(i) is enclosed herewith.

#### METHOD OF PAYMENT OF FEES

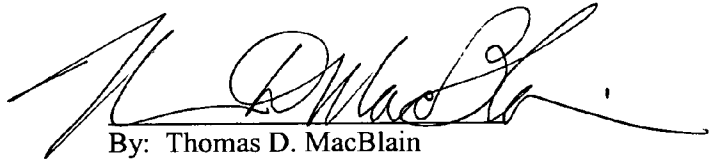
☐ Attached is a check in the amount of \$ .  
☐ Charge Deposit Account No. \_\_\_\_\_ in the amount of \$ . (A duplicate copy of this communication is enclosed for that purpose.)

In accordance with MPEP Sections 609 and 707.05(b), it is requested the document cited be given thorough consideration and that it be cited of record in the prosecution history of the present application by initialing on Form PTO-1449. Such initialing is requested even if the Examiner does not consider a cited document to be sufficiently pertinent to use in a rejection, or otherwise does not consider it to be prior art for any reason, or even if the Examiner does not believe that the guidelines for citation have been fully complied with. This is requested so that each document becomes listed on the face of the patent issuing on the present application.

Respectfully Submitted,

Date:

5/24/04



By: Thomas D. MacBlain  
Reg. No. 24,583

Gallagher & Kennedy, P.A.  
2575 East Camelback Road  
Phoenix, Arizona 85016-9225  
Tel No. (602) 530-8088  
Fax No. (602) 530-8500



<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (Use as many sheets as necessary)		<b>Complete if Known</b>	
		Application Number	10/634,520
		Filing Date	August 4, 2003
		First Named Inventor	Matthew J. Gilbert
		Art Unit	2811
		Examiner Name	
Sheet 1	of 2	Attorney Docket Number	9138-0099US

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
/NP/	1.	DEUTSCH, D., "Is There a Fundamental Bound on the Rate at Which Information Can be Processed?" Physical Review Letters, 25 January 1982, 286-288, Vol. 48, No. 4.	
	2.	BENNETT, et al., "Teleporting an Unknown Quantum State via Dual Classical and Einstein-Podolsky-Rosen Channels," Phys. Rev. Lett., 29 March 1993, 1895-1899, Vol. 70, No.13.	
	3.	SHOR, P.W., "Algorithms for Quantum Computation: Discrete Logarithms and Factoring," Ann. Symp. Fndtns. Comp. Sci., 1994 IEEE Comp. Soc. Press, 124-134.	
	4.	CHUANG et al., "Bulk quantum computation with nuclear magnetic resonance: theory and experiment." Proc. R. Soc. London A. 1998, 447-467.	
	5.	MULLER, et al., "Quantum Cryptography," Europhys. Lett. 33, 1996, p.335.	
	6.	ZBINDEN, et al., "Interferometry with Faraday mirrors for quantum cryptography," Electron. Lett. 27 March 1997, 586-588, Vol. 33, No. 7.	
	7.	BENNETT, C., "Quantum Cryptography Using Any Two Nonorthogonal States," Phys. Rev. Lett. 25 May 1992, 3121-3124, Vol. 68 No. 21.	
	8.	BENNETT, C. H., "Quantum Cryptography: Public Key Distribution and Coin Tossing," IEEE NY 1984, p. 175.	
	9.	GOLDENBERG, L. et al., "Quantum Cryptography Based on Orthogonal States," Phys. Rev. Lett. 14 August 1995, 1239-1243, Vol. 75, No. 7.	
/NP/	10.	USUKI, T., et al., " Numerical analysis of ballistic-electron transport in magnetic fields by using a quantum point contact and a quantum wire," Phys. Rev. B., 15 Sept. 1995.	

Examiner Signature	/Nirav Patel/	Date Considered	04/02/2008
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\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.  
1 Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached.  
This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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Substitute for form 1449/PTO		<b>Complete if Known</b>	
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (Use as many sheets as necessary)		Application Number	10/634,520
		Filing Date	August 4, 2003
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		Art Unit	2811
		Examiner Name	
Sheet 2	of 2	Attorney Docket Number	9138-0099US

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
/NP/	11	GILBERT, M. J. et al., "Application of split-gate structures as tunable spin filters," App. Phys. Lett. 14 August 2000, 1050-1051, Vol. 77, No. 7.	
/NP/	12	ALTER, O. et al., "Inhibition of the measurement of the wave function of a single quantum system in repeated ...," Phys. Rev. Lett. 22 May 1995, 4106-4109, Vol. 74, No. 21.	
/NP/	13	WEINSTEIN, Y. S., et al., "Implementatin of the quantum fourier transform," Phys. Rev. Lett. 26 Feb. 2001, 1889-1891, Vol. 86, No. 9.	

Examiner Signature	/Nirav Patel/	Date Considered	04/02/2008
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